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### Cross-level effects of high performance work practices

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# Cross-level effects of high-performance work practices on burnout

Cross-level  
effects of HPWPs  
on burnout

## Two counteracting mediating mechanisms compared

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### Abstract

**Purpose** – The purpose of this paper is to explore the impact of management practices – specifically, high-performance work practices (HPWPs) – on employee burnout. Two potential mediating mechanisms that counterbalance each other in the development of burnout are compared: a critical mechanism that states that HPWPs intensify job demands (which increases burnout) and a positive mechanism that states that HPWPs increase fairness among employees (which reduces burnout).

**Design/methodology/approach** – Questionnaire data are gathered among 393 employees working in 86 Dutch organizations. Human resource managers provide information about HPWPs while employees were inquired about their perceptions of job demands, fairness, and burnout. Multilevel regression analyses were conducted to test the assumptions.

**Findings** – The analyses reveal a slightly positive relationship between HPWPs and burnout, which is completely mediated by job demands. Fairness was associated with the experience of less burnout, but the results do not sustain the idea that HPWPs contributed to procedural justice. Although the data do not support the idea that justice and intensified job demands counteract each other in the development of burnout under systems of HPWPs, the results do support a critical “employee exploitation” oriented perspective on HPWPs.

**Originality/value** – Most studies on HPWPs focus on mechanisms that explain positive employee well-being outcomes. A more critical perspective, which predicts increased employee strain as a result of demanding work practices, is also valid. The results of this paper indicate that the critical perspective on HPWPs receives empirical justification and requires further elaboration in future research.

**Keywords** Working practices, Performance levels, Stress, Human resource management, Job satisfaction, The Netherlands

**Paper type** Research paper

### Introduction

This paper compares two competing mechanisms that might mediate the link between high-performance work practices (HPWPs) and employee burnout. Burnout is the ultimate consequence of endured job strain (Maslach, 1993), that can result from any job in itself but also from management practices (Maslach *et al.*, 2001). The few studies that explored the impact of modern management practices on employee burnout report mixed results (Godard, 2001b; Ramsay *et al.*, 2000). Our study examines whether these results can be explained by combining two counteracting mechanisms into a balanced model. The first explanation holds that HPWPs are designed to increase employee performance by means of higher job demands, which increases job strain (Ramsay *et al.*, 2000). The second explanation expresses the positive contribution of HPWPs to



employees. HPWPs provide clear and consistent procedures that result in more feelings of procedural justice, which reduces strain (Elovainio *et al.*, 2001). In this paper, we explore to what extent these two mechanisms can be found in empirical data and to what extent the two mechanisms balance each other out in the relationship between HPWPs and burnout.

We use organization-level data collected from human resource (HR) managers in 86 organizations, and individual-level data from a sample of 393 individual employees working in these organizations. In the paper, we first provide a theoretical explanation for the relationship between HPWP and burnout and introduce the two contradictory mechanisms. The second section describes the sample and the multilevel nature of our data. The third part presents the multilevel analyses that test our model, and the last section discusses the results and the implications of our findings.

#### *HPWP and burnout*

HPWPs are mostly welcomed as a positive impulse for organizations as well as for employees, although critics warn that the unilateral focus on performance increases the risk of employee exploitation (Godard, 2001a, b; Legge, 1995). HPWPs are comprehensive bundles of practices aimed at motivating employees in such a way that their performance increases and contributes to the competitive advantage of organizations (Combs *et al.*, 2006; Huselid, 1995). The key to the success of HPWPs seems to be the way organizations deal with human capital, because it enables a context in which employees are willing to put in extra effort (Appelbaum *et al.*, 2000).

HPWPs consist of a number of coherent practices aimed at managing employees in organizations in such a way that they work together to select, develop, and motivate a workforce that has outstanding qualities and that uses these qualities in work-related activities with discretionary effort, which result in improved organizational performance and sustained competitive advantage for the organization (Appelbaum *et al.*, 2000). Yet, the exact combination of practices (Evans and Davis, 2005; Arthur and Boyles, 2007) and the mechanisms through which HPWPs increase performance (Boselie *et al.*, 2005; Guest, 2002; Gibson *et al.*, 2007) are still under discussion.

The effects of HPWPs on employees, instead of organizations, received less research attention (Appelbaum *et al.*, 2000; Godard, 2001a, b; Guest, 2002). The mainstream, unitarist view holds that HPWPs have positive outcomes for the organization and for employees (Appelbaum *et al.*, 2000; Paauwe, 2004). HPWPs offer employees external and internal incentives like flexible remuneration, training, teamwork, and autonomy (Appelbaum *et al.*, 2000), which are assumed to be simply “good” for employees (Godard, 2001a, b). Most empirical studies into HPWPs indeed investigate employee attitudes like motivation or satisfaction, which precede extra effort and hence increased performance (Appelbaum *et al.*, 2000; Guest, 2002). A critical note is that this approach neglects the implicit economical force that drives the systems: in the end, it is the employee who simply needs to work harder (Legge, 1995). This we might call the “exploitation hypothesis,” which holds that management practices which aim at creating competitive advantage for the organization are at the costs of employee work intensification.

Few studies on HPWPs or related management practices have focused on the negative well-being effects like employee burnout that may result from increased employee exploitation. Burnout is a psychological syndrome which results from chronic, high-stress levels at work (Maslach, 1993). Chronic high-job demands lead to

emotional exhaustion as an individual stress response, which results in detachment (emotional withdrawal from the job) and reduced feelings of personal accomplishment (feeling capable to do the job) (Maslach *et al.*, 2001). Burnout develops in essence from the starting point of emotional exhaustion in response to an overload of job demands, and eventually intertwines with every nerve of a person's being. So, although the burnout syndrome consists of three dimensions, the emotional exhaustion component is the most central. In this study, we, therefore, focus solely on this emotional exhaustion dimension of burnout.

The focus of burnout research has widened from the individual job context to the broader context of organization management, hierarchy, layout and even the wider organizational environment (Schaufeli, 2006). Schaufeli (2006) uses social exchange theory to illustrate that emotional exhaustion results from unmet reciprocity at different levels of the employees' work context. Besides, the individual job level and interaction with supervisor and colleagues, social exchange with the organization impacts emotional exhaustion and withdrawal behaviours. Especially, poor communication, poor management, and downsizing are known to be organization level stressors (Schaufeli, 2006). Management practices like HPWPs are part of the context of individual jobs. In this respect, HPWPs can be viewed as a "wolf in sheep's clothing" (Legge, 1995), as their official intention appears to be – at least – good communication and good management. Noblet and Rodwell (2008) reviewed the contribution of contextual stressors, especially organizational justice and contextual job demands to job stress and burnout. In general, there seems to be support for the thesis that people's overall assessment of organizational justice contributes to reducing stress over and above more traditional and job-level stress antecedents like job demands and control (Noblet and Rodwell, 2008).

Below, we introduce two mechanisms in the HPWPs-burnout linkage. One is based on the critical, employee exploitation hypothesis and another on the positive role that procedural organizational justice might play. The intensified job demands mechanism derives from a critical "exploitation" perspective on HPWPs (Godard, 2001b; Legge, 1995), while the high-organizational justice mechanism is in line with a more positive perspective on HPWPs (Elovainio *et al.*, 2001).

#### *HPWPs, job demands and burnout*

The critical perspective that relates HPWPs to burnout does so by focussing on intensified job demands as the mediating variable. Critical authors have warned for the unilateral focus of the HPWPs doctrine on performance (Greenwood, 2002). The continuous effort to maximally employ the potential of employees stresses the employee's capacity to cope with these demands (Godard, 2001b). Central in this observation is the ambiguous nature of human resource management (HRM). HRM is not just "good" for employees, because the bottom line is that all HPWPs incentives have only one goal, and that is to achieve a better position for the company (Greenwood, 2002). Basically, it can be perceived as a management tool that is designed to control employees, in order to increase organizational performance (Legge, 1995). The expected return from the employee for the HPWP incentives is extra or discretionary effort (Appelbaum *et al.*, 2000). When an organization invests in employees, employees feel the urge to exchange this investment with extra effort and commitment to the organization, in short with positive attitudes towards the

organization (Legge, 1995). Although employees may value the incentives offered to them through HPWPs, the message that the system signals to the employees is one of expectations of increased performance, and that it is the company which ultimately benefits from the employees' extra effort (Legge, 1995).

When a continuous feeling of high demands is experienced, the risk of emotional exhaustion increases (Bakker *et al.*, 2004; Karasek and Theorell, 1990). Godard (2001b) found that employees who worked in organizations that adopted high levels of HPWPs reported more experiences of stressful work. Employees in organizations with a moderate level adaptation to HPWPs merely experienced positive consequences. In a longitudinal study in Canadian workplaces, Godard (2001a) found that initially HPWPs yielded positive outcomes for employees, but the more intensive high-performance workplace reforms were, these positive returns from these investments diminished, which was explained through work intensification that resulted from these programmes. Ramsay *et al.* (2000) also found some evidence for work-intensification in organizations with a larger number of HPWPs.

In our study, we investigate whether in organizations where more jobs are covered by HPWPs, employees experience higher job demands, and whether this in turn results in emotional exhaustion, the main component of burnout.

#### *HPWPs, procedural justice, and burnout*

The positive perspective relates HPWPs to burnout by looking at procedural justice as the mediating mechanism. Justice is the outcome of fairness evaluations. Employees experience procedural injustice when procedures are perceived as unfair. Recently, employee well-being research has investigated the importance of justice in the prevention of burnout (Noblet and Rodwell, 2008) and indeed it has been proven a valuable resource in coping with uncertainty and stress (van den Bos *et al.*, 1998). Especially, the perception of the rightfulness of procedures in the organization has structural effects on decreased levels of stress (Schminke *et al.*, 2000).

Procedural justice is defined as the perceived fairness of the process that leads to an outcome (Colquitt *et al.*, 2001). Procedural justice has been empirically related to burnout (Elovainio *et al.*, 2001). It provides employees a sense of control over uncertain circumstances, which reduces feelings of burnout (Elovainio *et al.*, 2001; Greenberg, 2004; Maslach *et al.*, 2001; Schmidt and Dörfel, 1999).

Organizational policies, and the way these are implemented and enacted in the organization, produce perceptions of justice (Cropanzano and Ambrose, 2001). Management practices, including HPWPs, are policies that help to establish and clarify rules and procedures within the organization. HPWPs signal the intentions of the organization to the employee. The more these intentions are bundled, the easier it is for employees to understand their logics (Rousseau, 2001). HPWPs are designed as a bundle of HR practices which are aligned with company strategy and with each other (Evans and Davis, 2005; MacDuffie, 1995). HPWPs function as a management vehicle that carries a consistent signal to employees (Rousseau, 2001). Consistent procedures like HPWPs are, therefore, associated with procedural justice: the perceived justice of the process (Chang, 2005; Cropanzano and Ambrose, 2001). Procedural justice is a solid predictor for an employees' evaluation of the organization as a whole, senior management and HR systems (Cropanzano *et al.*, 2001; McFarlin and Sweeney, 1992). Procedural justice has been empirically demonstrated to have relationships both with

HPWPs and with increased performance. For example, Colvin (2006) found that HPWPs positively relate to perceptions of procedural justice.

Fully implemented HPWPs in an organization guarantee that HR procedures are consistent for all employees. When everybody enjoys the same procedures, the better these procedures are liked, and the more justice is experienced (Cropanzano *et al.*, 2001; McFarlin and Sweeney, 1992). Feelings of inequality and injustice occur when procedures differ for people within a group (Thibaut and Walker, 1975).

In our study, we investigate whether in organizations where more jobs are covered by HPWPs, employees experience more procedural justice and, therefore, as a consequence also lower levels of burnout.

### *Counteracting mechanisms*

The relationship between HPWPs and burnout was framed above in terms of two possible perspectives on HPWPs: the critical, exploitation perspective, and the positive perspective. This study focuses on the emotional exhaustion component of burnout, because that relates most directly to stressors in the work environment. The presence of HPWPs is a contextual variable that can be connected to the mediating mechanisms of increased job demands and increased procedural justice. However, when following the critical perspective of intensified job demands, the relationship between HPWPs and emotional exhaustion is positive, causing more emotional exhaustion. By contrast, when we follow the positive perspective of increased procedural justice, the relationship between HPWPs and emotional exhaustion is negative, implying less emotional exhaustion. The two mechanisms therefore are expected to counteract each other, which – in sum – leads to the absence of an observable relationship between HPWPs and burnout. We can now present our hypotheses:

- H1a.* The more employees are covered by HPWPs, the more employees will experience high-job demands, and the more emotional exhaustion is experienced to exist among them.
- H1b.* The more employees are covered by HPWPs, the more employees experience procedural justice, and less emotional exhaustion is experienced by them.
- H2.* There is no relationship between HPWPs and emotional exhaustion, because the mediating mechanisms of experienced job demands and experienced procedural justice have opposite, counterbalancing effects.

The hypotheses are summarized in the research model in Figure 1.

## **Method**

### *Procedure*

We used questionnaire data to test our model. Two questionnaires were developed: one for HR managers and one for employees. HR managers provided information about the HR system and organizational characteristics. On average five employees for each organization provided data on individual job demands, procedural justice, and burnout.

Students in HR studies collected the questionnaire data according to a detailed instruction and protocol. The employee sample had to be representative for the organization; this meant that the largest part of the employee respondents should be

working in the primary process of the organization, and that the sample distribution of gender, age, and educational level should be representative for the organization. The HR manager of each organization signed a form by which (s)he confirmed to approve of this process of data collection. Data gathering took place in two waves; the first wave was in the autumn of 2006 and the second in the spring of 2007.

Sample

In total, survey data of 453 employees working in 90 organizations where HR managers were surveyed were collected. The average number of questionnaires per organization is five. Listwise deletion of respondents with missing information resulted in a final sample of 393 employees from 86 organizations.

About half of the respondents were female (48.9 percent). About 44 percent had a higher level of education. About 45 percent of the organizations were in the service industry (e.g. finance and retail), about 11 percent of the organizations were in health care (e.g. hospitals), 25 percent of the organizations were in industry, and 16 percent were in non-commercial organizations (e.g. schools).

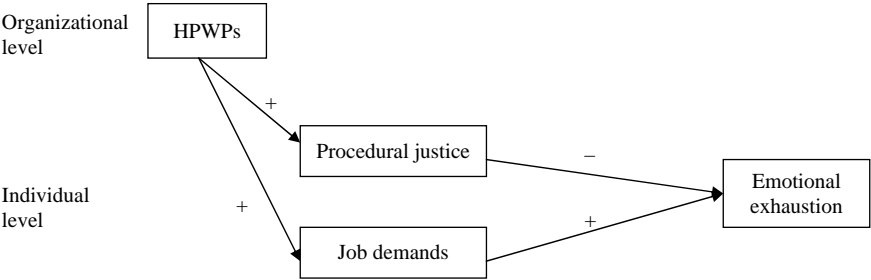
Instruments

- *HPWPs*. They were measured in the HR manager questionnaire. A list of HR practices was developed based on Appelbaum *et al.* (2000), Boselie (2002), den Hartog and Verburg (2004) and de Kok *et al.* (2002). Prerequisites for inclusion in the scale were simplicity (easy to score) and suitability for a large range of organizations in the Dutch context. Answering categories applied to how many employee groups were covered by a specific HPWP, instead of simply asking whether a practice is present or not (Boselie, 2002), but without the necessity to discern between different employee groups. The answering categories were: “never,” “incidentally,” “for some jobs,” “for many jobs,” and “for all jobs.”

HPWPs were grouped under six categories: strict selection (four items), development and career opportunities (seven items), rewards (five items), performance evaluation (four items), participation and communication (four items), and task analysis and job design (one item). Sample items can be found in the Appendix. The validity of each category was confirmed by means of factor analysis. All categories of practices had satisfying Cronbach’s alphas (average 0.69).

To create a single measure, the category scale scores were taken together in a second-level factor analysis which revealed that one factor explained a sufficient

**Figure 1.**  
Multi-level research model  
of HPWPs and burnout  
(emotional exhaustion)  
mediated by job demands  
and procedural justice





amount of variance among the categories. Cronbach's alpha of the second order scale of HPWPs was 0.77. Further details on the HPWPs measure are available from the first author upon request.

- *Procedural justice.* It was measured with a five-item scale by Francis and Barling (2005). Answering categories ranged from "1 = completely disagree" to "5 = completely agree." A sample question is: "If someone laid a complaint, my organization would collect all the information necessary for decision making." The questions were translated from English to Dutch. The Dutch version was translated back to English by a native speaker; differences were discussed and adjustments were made where necessary. The scale showed good reliability ( $\alpha = 0.89$ ).
- *Job demands.* They were measured with a six item scale on the amount and speed of work, which is part of a validated instrument that is often used in The Netherlands to measure psychosocial job conditions (VBBA; van Veldhoven and Meijman, 1994). A sample question is: "Do you have to work very fast?" Answering categories range from "never" to "always." Reliability of the scale was good ( $\alpha = 0.79$ ).
- *Emotional exhaustion.* It was measured using Schaufeli and van Dierendonck's (2000) UBOS-scale (general version). This scale contains four items. A sample item is: "I feel emotionally drained by my work." The reliability of the scale is good (0.88).
- *Control variables.* The model controlled for the following variables contract type (part-time vs fulltime), educational level (low, medium and high), gender, size of the organization, and sector (non-profit and profit). The first three are individual-level variables derived from the employee survey, whereas the last two are organization-level variables derived from the HR manager survey.

### Statistical analyses

The model to be tested is multilevel in nature, since we investigated the effect of an organizational-level construct (HPWPs) on an individual-level variable (emotional exhaustion) via two individual-level mechanisms (procedural justice and job demands). This type of mediation is referred to as cross-level mediation – lower mediation (Mathieu and Taylor, 2007), because the antecedent (HPWPs) emanates from the higher level of analysis (organizations), whereas the mediators (job demands and justice) and the dependent variable emotional exhaustion reside at the individual level of analysis. Moreover, employees are nested within the investigated organizations. The nesting is likely to cause dependency in our data, which needs to be taken into account (Snijders and Bosker, 1999). Therefore, we tested our hypotheses with three sets of Multilevel regression analyses with procedural justice, job demands and finally emotional exhaustion as dependent variables. Data analysis were performed using MLwiN (Rasbash *et al.*, 2003).

To justify the application of multilevel regression analyses, we first tested a series of null models (M1) to examine whether there was enough between-organization variance in the individual-level variables of procedural justice, job demands and burnout. To examine the amount of between-organization variance, we computed the ICC1-statistic, which can be defined as the amount of variance in individual scores



attributable to the organization (Bliese, 2000). Next, we included our control variables (educational level, gender, contract type, and size and sector) into the null-models resulting in a series of baseline models (M2). In the third set of models (M3), the additional effect of HPWPs was modelled. Finally, only for burnout we also included job demands and procedural justice in the model (M4). Deviance tests are used to compare models, and *t* tests are used to test the significance of the effects of single variables.

Baron and Kenny's (1986) guidelines for assessing statistical mediation were used. This refers to testing *H1a* and *H1b*. A first requirement for mediation is a significant effect between the independent variable and the mediating variable; in this research significant effects between HPWPs on the one hand, and job demands and procedural justice on the other. Subsequently, by comparing the effects of HPWPs on emotional exhaustion in M3 with the effects of HPWPs on emotional exhaustion in M4 (including the mediating variables of job demands and procedural justice) we can determine to what extent mediation occurs. Finally, we performed a Sobel (1982) test to assess the significance of the proposed mediating mechanisms. To test *H2*, the results should show a non-significant relationship between HPWPs and emotional exhaustion in M3 and a confirmation of the counteracting mediation of both justice and job demands in M4.

### *Results*

Table I shows the means, standard deviations, and correlations between the variables both at individual and the organizational level.

At the individual level of analysis, it was found that higher educated employees experience higher job demands. It was also found that employees working more than 36 hours a week experience higher job demands than employees working less than 36 hours a week. Male employees experience higher job demands than female employees. Male employees reported lower scores on procedural justice and higher scores on emotional exhaustion than female employees. Furthermore, we found significant correlations between procedural justice, job demands, and emotional exhaustion.

At the organizational level we found a positive relationship between organizational size and HPWPs. Furthermore, we found significant relations between HPWPs and job demands, and between procedural justice, and emotional exhaustion.

### *Job demands*

First, we discuss the effect of HPWPs on job demands (part of *H1a*). We specified a null model (M1) to split the variance in parts at the individual ( $\sigma^2$ ) and organizational level ( $\tau^2$ ). At both levels there is unexplained variance in job demands ( $\sigma^2 = 0.17$ ,  $\tau^2 = 0.05$ ). The ICC value of job demands is 0.21, meaning that 21 percent of the variance is attributable to organizational membership, our grouping variable.

In the second model, we entered our control variables (M2). Only educational level was significantly related to job demands ( $\gamma = 0.137$ ,  $t = 2.63$ ,  $p < 0.05$ ), higher level educated employees experience higher levels of demands. Furthermore, it was found that the more an organization applies HPWPs for all jobs, the higher the job demands. Including HPWPs scores resulted in a significant model improvement ( $\Delta\chi^2 = 12$ ,  $p < 0.05$ ). HPWPs demonstrated a positive significant relationship with job demands ( $\gamma = 0.183$ ,  $t = 3.5$ ,  $p < 0.05$ ) (Table II).

Variable	Mean	SD	1	2	3	4	5	6
<i>Individual level</i>								
1. Procedural justice	3.62	0.66	1					
2. Job demands	2.18	0.46	-0.091	1				
3. Emotional exhaustion	1.33	0.98	-0.189*	0.311*	1			
4. Contract type	0.50	0.50	-0.022	0.172*	0.038	1		
5. Educational level	2.39	0.58	-0.055	0.229*	-0.002	0.141*	1	
6. Gender	0.49	0.50	0.157*	-0.106*	-0.131*	-0.440*	-0.093	1
<i>Organizational level</i>								
1. HPWPs	3.25	0.62	1					
2. Average procedural justice	3.63	0.44	0.013	1				
3. Average job demands	2.19	0.29	0.354*	-0.053	1			
4. Average emotional exhaustion	1.32	0.55	0.080	-0.289*	-0.053	1		
5. Sector	2.18	1.04	0.019	-0.169	-0.071	0.062	1	
6. Size	374.38	805.69	0.230*	-0.136	0.191	0.070	-0.047	1

**Notes:** \*  $p < 0.05$ ; gender: 1 – female, 0 – male; contract type: 1 – contract  $> 36$  hours, 0 – other; sector: 1 – profit, 0 – non-profit

**Table I.**  
Means, standard  
deviations, and  
correlations

**Table II.**  
Multilevel regression  
analyses predicting job  
demands

Variable	M1	M2	M3
<i>Individual level</i>			
Educational level			
Low		−0.120 (0.111)	−0.117 (0.109)
High		0.137 (0.052)*	0.115 (0.051)*
Gender		−0.069 (0.057)	−0.069 (0.056)
Contract type		0.088 (0.057)	0.065 (0.057)
<i>Organizational level</i>			
Size		0.00 (0.000)	0.00 (0.000)
Sector		−0.056 (0.075)	−0.064 (0.069)
HPWPs			0.183 (0.052)*
<i>Variance components</i>			
Individual level	0.170	0.167	0.168
Organizational level	0.045	0.037	0.026
Modelfit (−2 log likelihood)	486	407	395

**Notes:** \* $p < 0.05$ ; the first value is the parameter estimate and the value in parentheses is the standard error; educational level: medium is reference category; gender: 1 – female, 0 – male; contract type: 1 – contract > 36 hours, 0 – other; sector: 1 – profit, 0 – non-profit

*Procedural justice*

Second, we examined the effect of HPWPs on procedural justice (part of *H1b*). We specified a null model (M1) to split the variance in parts at the individual ( $\sigma^2$ ) and organizational level ( $\tau^2$ ). At both levels there is unexplained variance in procedural justice ( $\sigma^2 = 0.34$ ,  $\tau^2 = 0.10$ ). For procedural justice, we found that 24 percent of the variance in individual procedural justice perceptions is attributable to the organization.

In the baseline model, we entered our control variables (M2). In M3, HPWPs demonstrated a non-significant relationship with procedural justice ( $\gamma = 0.039$ ,  $t = 0.45$ ,  $p > 0.05$ ). Therefore, we did not find evidence that the more an organization applies HPWPs to all employees, the higher the average perception of procedural justice is. Including HPWP scores did not result in a significant model improvement ( $\Delta\chi^2 = 1$ ,  $p > 0.05$ ) (Table III).

*Emotional exhaustion*

Finally, we assessed the effects of HPWPs, job demands and procedural justice on the burnout dimension of emotional exhaustion. Again, we specified a null model (M1) to split the variance in parts at the individual ( $\sigma^2$ ) and organizational level ( $\tau^2$ ). At both levels there is unexplained variance in emotional exhaustion ( $\sigma^2 = 0.85$ ,  $\tau^2 = 0.11$ ). The ICC1 value of burnout was 0.11, indicating that 11 percent of the variance in burnout was at the organizational level. This amount of variance at the organizational level is comparable to values reported previously in the literature (van Veldhoven *et al.*, 2002).

In a second model, we entered our control variables (M2). Only gender was significantly related to burnout ( $\gamma = -0.277$ ,  $t = 2.47$ ,  $p < 0.05$ ), female employees experiencing lower levels of burnout than male employees.

Next, we regressed burnout on the HPWPs (M3). Including HPWPs scores did not result in a significant model improvement ( $\Delta\chi^2 = 3$ ,  $p > 0.05$ ), and in this model HPWPs demonstrated a small non-significant relationship with burnout ( $\gamma = 0.211$ ,

				Cross-level effects of HPWPs on burnout
Variable	M1	M2	M3	
<i>Individual level</i>				
Educational level				<b>519</b>
Low		0.243 (0.158)	0.244 (0.158)	
High		− 0.013 (0.074)	− 0.017 (0.075)	
Gender		0.157 (0.081)	0.156 (0.081)	
Contract type		0.124 (0.081)	0.119 (0.082)	
<i>Organizational level</i>				
Size		0.00 (0.000)	0.00 (0.000)	
Sector		− 0.138 (0.117)	− 0.140 (0.117)	
HPWPs			0.039 (0.087)	
<i>Variance components</i>				
Individual level	0.337	0.328	0.328	
Organizational level	0.104	0.109	0.109	
Modelfit (− 2 log likelihood)	762	652	651	
<b>Notes:</b> * $p < 0.05$ ; the first value is the parameter estimate and the value in parentheses is the standard error; educational level: medium is reference category; gender: 1 – female, 0 – male; contract type: 1 – contract > 36 hours, 0 – other; sector: 1 – profit, 0 – non-profit				

Table III.  
Multilevel regression  
analyses predicting  
procedural justice

**Notes:** \* $p < 0.05$ ; the first value is the parameter estimate and the value in parentheses is the standard error; educational level: medium is reference category; gender: 1 – female, 0 – male; contract type: 1 – contract > 36 hours, 0 – other; sector: 1 – profit, 0 – non-profit

$t = 1.90$ ,  $p > 0.05$ ). This implies that the first part of  $H2$  is confirmed; we found no relationship between HPWPs and emotional exhaustion.

To further explore the counterbalanced mechanisms ( $H2$ ), we included job demands and procedural justice (M4). As a block these predictors showed a significant model improvement ( $\Delta\chi^2 = 39$ ,  $p < 0.05$ ). Both job demands and procedural justice showed a significant relationship with burnout ( $\gamma = 0.67$ ,  $t = 5.8$ ,  $p < 0.05$ ;  $\gamma = -0.18$ ,  $t = 2.3$ ,  $p < 0.05$ ). The more an individual experiences job demands the higher the feelings of emotional exhaustion. The more an individual experiences procedural justice, the lower the feelings of emotional exhaustion. However, since we did not find a relationship between HPWPs and procedural justice, we could not confirm the part of the hypothesis that states that procedural justice and job demands are counteracting mediating mechanisms between HPWPs and emotional exhaustion. So, according to the rules of Baron and Kenny (1986) only for job demands confirmation of a mediation thesis was found ( $H1a$ ). A Sobel (1982) test revealed that the indirect path linking HPWPs to emotional exhaustion through job demands was significant ( $z = 3.00$ ,  $p < 0.05$ ). The results are shown in Figure 2 (Table IV).

## Conclusion and discussion

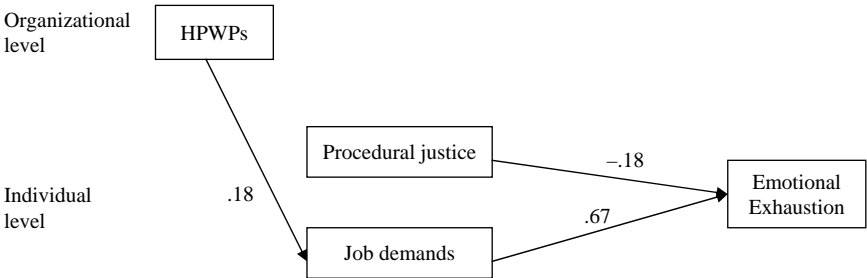
Management practices like HPWPs can yield negative consequences for employees when effects like emotional exhaustion are considered, rather than the mainstream job attitudes that dominate the current HPWPs literature. In our multilevel study of 393 employees working in 86 organizations, we examined two counteracting perspectives on how HPWPs relate to the emotional exhaustion dimension of burnout. The critical perspective predicted that HPWPs intensify job demands with more burnout as a result, whereas the positive perspective predicted that HPWPs cause more procedural justice for employees with less burnout as a result. HR managers of the 86 organizations provided information about the amount of employees in the organization that are

covered by HPWPs. On average five employees in each organization filled in questionnaires about job demands, procedural justice and emotional exhaustion.

As to the results, first of all, we found a rather small relationship between the amount of employees in an organization covered by HPWPs and emotional exhaustion. Further examination showed that this relationship was completely mediated by intensified job demands. So, in organizations that reported that more employees were covered by HPWPs, employees reported higher levels of job demands and this was also associated with more emotional exhaustion. Job demands mediated the link between HPWPs and emotional exhaustion.

The counteractive mechanism that was derived from the positive perspective was not confirmed by our data. Although it was found that employees who experienced more procedural justice also reported lower levels of emotional exhaustion, we could not confirm a relationship between HPWPs and procedural justice. The strength of the relation between procedural justice and emotional exhaustion was comparable to

Figure 2.  
Research findings



Variable	M1	M2	M3	M4
<i>Individual level</i>				
Educational level				
Low		– 0.204 (0.217)	– 0.260 (0.245)	– 0.134 (0.232)
High		– 0.055 (0.104)	– 0.115 (0.115)	– 0.194 (0.110)
Gender		– 0.277 (0.112) *	– 0.318 (0.125) *	– 0.240 (0.119) *
Contract type		– 0.094 (0.111)	– 0.162 (0.127)	– 0.187 (0.120)
Job demands				0.667 (0.115) *
Procedural justice				– 0.179 (0.078) *
<i>Organizational level</i>				
Size		0.00 (0.000)	0.00 (0.000)	0.00 (0.000)
Sector		– 0.022 (0.153)	– 0.032 (0.149)	– 0.011 (0.140)
HPWPs			0.211 (0.111)	0.095 (0.107)
<i>Variance components</i>				
Individual level	0.849	0.862	0.864	0.772
Organizational level	0.108	0.114	0.098	0.083
Modelfit (– 2 log likelihood)	1,090	946	943	904

Table IV.  
Multilevel regression  
analyses predicting  
emotional exhaustion

Notes: \*  $p < 0.05$ ; the first value is the parameter estimate and the value in parentheses is the standard error; educational level: medium is reference category; gender: 1 – female 0 = male; contract type: 1 – contract > 36 hours, 0 – other; sector: 1 – profit, 0 – non-profit

earlier findings, like that by Elovainio *et al.* (2001). In the absence of a link from HPWPs to procedural justice, however, mediation could not be established in this study.

An explanation why HPWPs coverage at the organizational level and individual experiences of procedural justice in our study was not confirmed could be related to the level of the source for procedural justice. The measure of procedural justice related to the organization as the source of justice, not to (line) management. This seems to be the right anchor when considering that our HPWPs were conceptualized and measured at the organizational level. However, many authors underline the importance of line manager behaviour as to whether employees feel that they are treated procedurally just (Colquitt *et al.*, 2001). Although HPWPs apply to all employees, which should make it easier for (line) managers to treat individual employees in a more similar way, individual differences between line manager styles of dealing with HPWPs might interfere with the perception of procedural justice by employees.

Overall, our study revealed more evidence that management practices like HPWPs act as contextual stressors that result in an intensification of job demands (Noblet and Rodwell, 2008).

### *Limitations*

The study is cross-sectional; all questionnaire data were collected at about the same time. The group size of employees per organization is quite small (on average five employees). Although equal group sizes facilitate between-group comparisons, it is hard to claim that our samples are equally representative for the participating organizations. However, our intra-class coefficients showed that enough variance in the experiences of these five employees was attributable to their organizational membership, providing justification for this study's data collection and analytical approach.

HPWPs were measured using a single respondent per organization, the HR manager, which implies a risk of rather large random measurement error (Kumar *et al.*, 1993). In addition, scores on the HPWPs scale can be interpreted in two different ways. For example, a high score can either be caused by the application of many individual HPWPs for some or many jobs, or by the application of some individual HPWPs for all jobs in the organization. However, the HPWPs measure itself was carefully designed by integrating available literature on how to measure HPWPs, especially in the context of the Netherlands. Moreover, Gibson *et al.* (2007) found that HR managers are in the right position to inform researchers about this topic.

### *Implications and future research*

Our study addressed some of the shortcomings of earlier research about the impact of HRM on employee well-being as noted by Peccei (2004). First, we used HR managers (presumably the subject matter experts on this topic in their organizations) to inform us about HPWPs. Much employee well-being research is based on employee's subjective reports of HR practices, whereas our measure of HPWPs is related to policies as attributed to the entire organization.

Second, we consider multiple HR practices simultaneously. Very few studies have done this so far (Godard, 2001a, b; Ramsay *et al.*, 2000), but all of these studies point in the direction that HPWPs do, to some extent, increase job demands.

Compared to positive employee outcomes that are reported elsewhere (Appelbaum *et al.*, 2000) our findings indicate that Peccei's (2004) critical approach



to understanding the effects of modern HR management practices on employee well-being is justified. We need to consider that eventually a healthy and productive workforce is economically most valuable, and this implies that research about all varieties of management practices and systems should have employee well-being of the type "job stress" or "fatigue/exhaustion" higher on the research agenda.

Also, practitioners could possibly benefit from a critical perspective when implementing new HR management practices, because eventually a long-term viable and productive workforce starts with a healthy workforce today. HR managers are in the position to signal the balance between well-being and performance effects of new management practices, and could contribute distinctively to long-term viability by combining attention for competitive advantage (innovation, productivity) with due attention to employee well-being, including health.

### *Conclusion*

This study examined the relationship between HPWPs and burnout. The multi-level and multi-source research design, often advocated by contemporary HR scholars (Wright and Boswell, 2002), revealed that HPWPs can have a negative side effect on employee burnout. Our study underlines the importance of a more balanced or critical approach to HPWPs (Legge, 1995; Peccei, 2004; Paauwe, 2004).

### **References**

- Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A. (2000), *Manufacturing Advantage: Why High-Performance Work Systems Pay off*, Cornell University Press, Ithaca, NY.
- Arthur, J.B. and Boyles, T. (2007), "Validating the human resource system structure: a levels based strategic HRM approach", *Human Resource Management Review*, Vol. 17, pp. 77-92.
- Bakker, A.B., Demerouti, E. and Verbeke, W. (2004), "Using the job demands-resources model to predict burnout and performance", *Human Resource Management*, Vol. 43, pp. 83-104.
- Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51, pp. 1173-82.
- Bliese, P.D. (2000), "Within group agreement, non-independence, and reliability: implications for data aggregation", in Klein, K.J. and Kozlowski, S.W.J. (Eds), *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Jossey-Bass, San Francisco, CA, pp. 349-81.
- Boselie, P. (2002), *Human Resource Management, Work Systems and Performance: A Theoretical-Empirical Approach*, Tinbergen Institute, Rotterdam.
- Boselie, P., Dietz, G. and Boon, C. (2005), "Commonalities and contradictions in research on human resource management and performance", *Human Resource Management Journal*, Vol. 15, pp. 67-94.
- Chang, E. (2005), "Employees' overall perception of HRM effectiveness", *Human Relations*, Vol. 58, pp. 523-44.
- Colquitt, J.A., Conlon, D.E., Wesson, J.J., Porter, C.O.L.H. and Ng, K.Y. (2001), "Justice at the millennium: a meta-analytic review of 25 years of organizational justice research", *Journal of Applied Psychology*, Vol. 86, pp. 425-45.
- Colvin, A.J.S. (2006), "Flexibility and fairness in liberal market economies: the comparative impact of the legal environment and high-performance work systems", *British Journal of Industrial Relations*, Vol. 44, pp. 73-97.

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- Combs, J., Liu, Y., Hall, A. and Ketchen, D. (2006), "How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance", *Personnel Psychology*, Vol. 59, pp. 501-28.
- Cropanzano, R. and Ambrose, M.L. (2001), "Procedural and distributive justice are more similar than you think: a monistic perspective and a research agenda", in Greenberg, J. and Cropanzano, R. (Eds), *Advances in Organizational Justice*, New Lexington Press, Lexington, MA, pp. 119-51.
- Cropanzano, R., Rupp, D., Mohler, C. and Schminke, M. (2001), "Three roads to organizational justice", *Research in Personnel and Human Resources Management*, Vol. 20, pp. 1-113.
- de Kok, J., Uhlaner, L.M. and Thurik, A.R. (2002), "Human resource management within small-and medium sized firms", EIM, Strategic Study B200103, EIM, Zoetermeer.
- den Hartog, D.N. and Verbarg, R.M. (2004), "High performance work practices, organisational culture and firm effectiveness", *Human Resource Management Journal*, Vol. 14, pp. 55-78.
- Elovainio, M., Kivimäki, M. and Helkema, K. (2001), "Organizational justice evaluations, job control, and occupational strain", *Journal of Applied Psychology*, Vol. 86, pp. 418-24.
- Evans, W.R. and Davis, W.D. (2005), "High-performance work systems and organizational performance: the mediating role of internal social structure", *Journal of Management*, Vol. 31, pp. 758-75.
- Francis, L. and Barling, J. (2005), "Organizational injustice and psychological strain", *Canadian Journal of Behavioural Science*, Vol. 37, pp. 250-61.
- Gibson, C.B., Porath, C.L., Benson, G.S. and Lawler, E.E. III (2007), "What results when firms implement practices: the differential relationship between specific practices, firm financial performance, customer service, and quality", *Journal of Applied Psychology*, Vol. 92, pp. 1467-80.
- Godard, J. (2001a), "Beyond the high-performance paradigm? An analysis of variation in Canadian managerial perceptions of reform programme effectiveness", *British Journal of Industrial Relations*, Vol. 39, pp. 25-52.
- Godard, J. (2001b), "High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work", *Industrial & Labor Relations Review*, Vol. 54, pp. 776-805.
- Greenberg, J. (2004), "Managing workplace stress by promoting organizational justice", *Organizational Dynamics*, Vol. 33, pp. 352-65.
- Greenwood, M.R. (2002), "Ethics and HRM: a review and conceptual analysis", *Journal of Business Ethics*, Vol. 36, pp. 261-78.
- Guest, D.E. (2002), "Human resource management, corporate performance and employee wellbeing: building the worker into HRM", *Journal of Industrial Relations*, Vol. 44, pp. 335-58.
- Huselid, M.A. (1995), "The impact of human resource management practices on turnover, productivity, and corporate performance", *Academy of Management Journal*, Vol. 38, pp. 635-72.
- Karasek, R. and Theorell, T. (1990), *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*, Basic Books, New York, NY.
- Kumar, N., Stern, L.W. and Anderson, J.C. (1993), "Conducting interorganizational research using key informants", *Academy of Management Journal*, Vol. 36, pp. 1633-51.
- Legge, K. (1995), *Human Resource Management: Rhetorics and Realities*, Macmillan, London.

- McFarlin, D.B. and Sweeney, P.D. (1992), "Distributive and procedural justice as predictors of satisfaction with personal and organizational outcomes", *Academy of Management Journal*, Vol. 35, pp. 636-7.
- MacDuffie, J.P. (1995), "Human resource bundles and manufacturing performance: organizational logic and flexible production systems in the world auto industry", *Industrial and Labor Review*, Vol. 48, pp. 197-221.
- Maslach, C. (1993), "Burnout: a multidimensional perspective", in Schaufeli, W.B., Maslach, C. and Marck, T. (Eds), *Professional Burnout: Recent Developments in Theory and Research*, Taylor & Francis, Washington, DC, pp. 1-16.
- Maslach, C., Schaufeli, W.B. and Leiter, M.P. (2001), "Job burnout", *Annual Review of Psychology*, Vol. 52, pp. 397-422.
- Mathieu, J.E. and Taylor, S.R. (2007), "A framework for testing meso-mediational relationships in organizational behavior", *Journal of Organizational Behavior*, Vol. 28 No. 2, pp. 141-72.
- Noblet, A.J. and Rodwell, J.J. (2008), "The relationship between organisational justice and job stress: insights, issues and implications", in Houdtmont, I. and Leka, S. (Eds), *Occupational Health Psychology: European Perspectives on Research, Education and Practice*, Nottingham University Press, Nottingham, pp. 281-312.
- Paauwe, J. (2004), *HRM and Performance: Achieving Long-Term Viability*, Oxford University Press, Oxford.
- Peccei, R. (2004), "Human resource management and the search for the happy workplace", inaugural address, Erasmus Research Institute of Management (ERIM), Rotterdam.
- Ramsay, H., Scholarios, D. and Harley, B. (2000), "Employees and high-performance work systems: testing inside the black box", *British Journal of Labour Relations*, Vol. 38, pp. 501-31.
- Rasbash, J., Browne, W. and Goldstein, H. (2003), *MLWin (Computer Software)*, Institute of Education, Centre for Multilevel Modelling, University of London, London.
- Rousseau, D.M. (2001), "Schema, promise and mutuality: the building blocks of the psychological contract", *Journal of Occupational & Organizational Psychology*, Vol. 74, pp. 511-41.
- Schaufeli, W.B. (2006), "The balance of give and take: toward a social exchange model of burnout", *Revue Internationale de Psychologie Sociale*, Vol. 19, pp. 87-131.
- Schaufeli, W.B. and van Dierendonck, D. (2000), *De UBOS, Utrechtse Burnout Schaal, handleiding (UBOS: Utrechtse Burnout Schaal-manual)*, Swets Test Services, Utrecht.
- Schmidt, M. and Dörfel, M. (1999), "Procedural injustice at work, justice sensitivity, job satisfaction and psychosomatic well-being", *European Journal of Social Psychology*, Vol. 29, pp. 443-53.
- Schminke, M., Ambrose, M.L. and Cropanzano, R. (2000), "The effect of organizational structure on perceptions of procedural fairness", *Journal of Applied Psychology*, Vol. 85, pp. 294-304.
- Snijders, T. and Bosker, R. (1999), *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modelling*, Sage, London.
- Sobel, M.E. (1982), "Asymptotic confidence intervals for indirect effects in structural equations models", in Leinhardt, S. (Ed.), *Sociological Methodology*, Jossey-Bass, San Francisco, CA, pp. 290-312.
- Thibaut, J. and Walker, L. (1975), *Procedural Justice*, Lawrence Erlbaum Associates, Hillsdale, NJ.
- van den Bos, K., Wilke, H. and Lind, E.A. (1998), "When do we need procedural fairness? The role of trust in authority", *Journal of Personality and Social Psychology*, Vol. 75, pp. 1449-58.

- 
- van Veldhoven, M. and Meijman, T.F. (1994), *The Measurement of Psychosocial Job Demands with a Questionnaire: The Questionnaire on the Experience and Evaluation of Work (QEEW)*, Nederlands Instituut voor Arbeidsomstandigheden, Amsterdam.
- van Veldhoven, M., de Jonge, J., Broersen, S., Kompier, M. and Meijman, T. (2002), "Specific relationships between psychosocial job conditions and job-related stress: a three-level analytic approach", *Work & Stress*, Vol. 16 No. 3, pp. 207-28.
- Wright, P. and Boswell, W. (2002), "Desegregating HRM: a review and synthesis of micro and macro human resource management research", *Journal of Management*, Vol. 28, pp. 247-76.
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#### **Appendix. Sample questions on HPWPs**

##### *Strict selection:*

"Are selection tests used in your organization?"

##### *Development and career opportunities:*

"Does your company offer formal internal training?"

##### *Rewards:*

"Does your company pay higher than average salaries?"

##### *Performance evaluation:*

"Does your company have a formal performance evaluation system?"

##### *Participation and communication:*

"Are employees involved in strategic decisions in your organization?"

##### *Task analysis and job design:*

"Are there tasks and jobs descriptions in your organization?"

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